SP-12056M

DEPARTMENT OF THE ARMY
MILITARY SURFACE DEPLOYMENT AND DISTRIBUTION COMMAND
709 WARD DRIVE, BLDG 1990
SCOTT AFB, IL 62225

Directorate of Safety (SDDC-SA)

December 15, 2008

U.S. Department of Transportation
Pipeline Hazardous Materials Safety Administration
Office of Hazardous Materials Safety
Office of Hazardous Materials Special Permits and Approvals (PHH-32)
1200 New Jersey Avenue, SE
East Building, 2nd Floor
Washington, DC 20590

Attn: Mr. Delmer Billings
Director, Special Permits and Approvals

Dear Sir:

In accordance with the provisions of Title 49, Code of Federal Regulations, Section 107.105, application is hereby made to modify Special Permit Authorization **DOT-SP 12056, Tenth Revision** on behalf of the Department of Defense. The following file number has been assigned:

File Number: 356-08 (1215)
Re: Request Revision of Special Permit Authorization DOT-SP 12056, Tenth Revision
Expiration Date March 31, 2011
Proponent: Department of Defense

DOT-SP 12056 authorizes the transportation in commerce of certain non-DOT specification propellant tanks designed to a military specification, overpacked in a UN 1A2 stainless steel drum, containing Division 6.1 liquid or Division 2.3 gas. This exemption provides no relief from the Hazardous Materials Regulations (HMR) other than specifically stated in **DOT-SP 12056.**

Request Revision as follows:

Paragraph 7(a)(2) Present: "Each propellant tank is held in a shock-dampening frame which is packaged in a DOT Specification 1A2 steel drum. The drum has a mechanical recorder and visual indicators for shock protection."

Paragraph 7(b)(2) Change to: "Each propellant tank is held in a shock-dampening frame which is packaged in a DOT Specification 1A2 steel drum. A mechanical recorder located inside the drum utilizes an alkaline or lithium battery for recording shock and vibration."

Justification for request: The Department of Defense contractor, Aerojet, is in the process of updating current recorders and obtaining new recorders that operate with lithium batteries which permit substantially longer recorder periods for anticipated DOD international shipments. Please see attachment 1, which represents the technical specifications for the Shocklog, ™ an advanced shock and vibration-monitoring instrument produced and marketed by Shockwatch, 7929 Brookriver, Dr., Suite 200, Dallas, TX 75247 intended for use in the propellant tank shipments utilizing the provisions of DOT-SP 12056.

This request is submitted by Mr. Joseph P. Dugan, (618) 220-5040, e-mail joseph.dugan@us.army.mil or sddc.safety@sddc.army.mil, Safety Staff, Military Surface Deployment and Distribution Command, ATTN: SDDC-SA, 709 Ward Drive, Building 1990, WS: 2W214-29, Scott AFB, IL.,6225.

Sincerely,

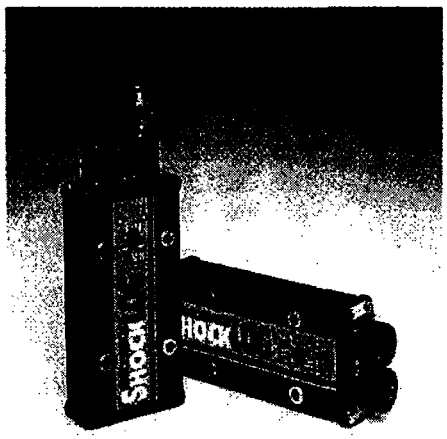
Earle Chase
Occupational Safety & Health Manager

Encl(s)
Att 1. Shock and Vibration-monitoring instrument specification
Att 2. DOT-SP 12056, Rev 10

SHOCK WATCH™

ShockLog

Define your Shipping and Storage Environment With Shocklog - A Low Cost Tri-axial Shock and Vibration Monitor



The ShockLog combines advanced tri-axial piezo electric accelerometer technology with sophisticated electronics and software to offer an advanced shock and vibration-monitoring instrument.

Key Features

- Three built in accelerometers
- Built in temperature sensor
- Optional external sensors
- Velocity or acceleration measurements
- Detailed record of significant events
- Date and time stamping
- Non volatile memory records 500 day history
- Adjustable warning and alarm thresholds
- LED operation, warning & alarm indicators
- Tamper proof; factory & user passwords
- IP67 sealed and RF screened
- Completely self contained (battery operated)
- 12 month battery life
- Uses std. C size battery: lithium or alkaline

Features

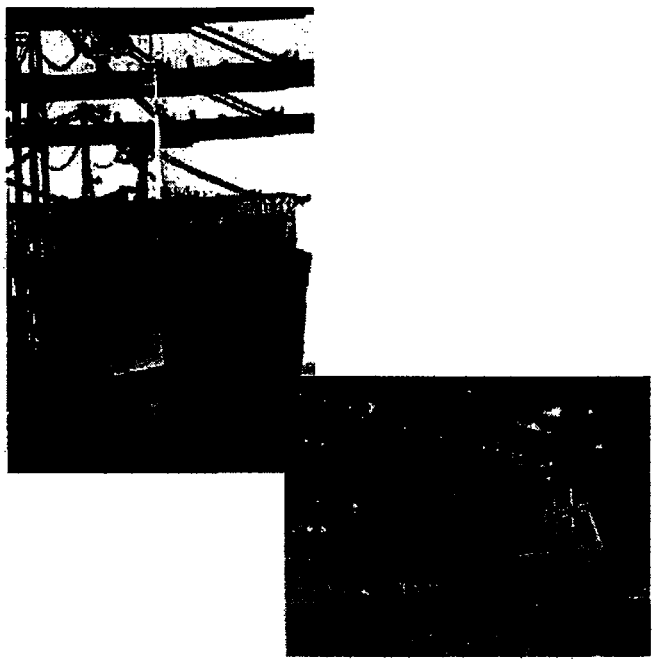
The Shocklog has been designed to monitor shock and vibration based on acceleration or velocity measurements. It has several unique features, which make it specially suitable for applications where the cost of exposure to out of specification environmental influences is very high. The instrument is equally convenient for protecting high value fixed or mobile installations or characterizing shock and vibration during transportation.

In normal operation the device checks the output of the sensors (the three built in accelerometers, the built in temperature sensor and any external sensors) once every 10 seconds. The information from the sensors is merged into a record for each recording period and recorded in non-volatile memory. The length of the recording period can be set between 10 minutes and 24 hours with sufficient memory for 512 periods.

If any of the accelerometer signals or the first external input exceeds the 'wake up' threshold the processor will be turned on and will check the sensor outputs at a much faster rate (up to 4000 samples per second). If the output of any sensor exceeds the warning or trip thresholds, the Shocklog will flash its status lamps accordingly. In addition the detailed acceleration time history of the first event to set a warning, the first to set an alarm and subsequent severe events up to the installed memory capacity will be recorded. The Shocklog will adjust the sample rate during the event recording (within parameters set up by the user) to make the most efficient use of memory and capture the full extent of any events. Due to each axis being monitored independently a full shock profile can be developed.

The external inputs are intended for use with low bandwidth devices such as pressure or humidity sensors and, in addition, the first external input can be used to trigger the Shocklog.

The Shocklog also supports peak recording in fixed time slots. In this mode the highest and lowest signal level present on each input is recorded for each time slot. The time slot length may be set between 10 seconds and 1 hour and as many as 262,144 slots may be recorded.



Security

The Shocklog stores all data and status information in high performance sector erase FLASH memory. This memory requires no power to retain data and offers special hardware protection against accidental erasure.

The instrument can be configured by connecting it to a PC running the data analysis and set up software supplied free with each Shocklog. During the configuration process the operator can set the levels for warnings and alarms, determine the sensor types to be used and set up user passwords for subsequent access to data.

Before the software will communicate with the Shocklog the user must supply the factory password for the individual instrument and any user passwords that may have been set to restrict access to data, resetting, calibration or other functions.

Casing, Mounting & Environment Conditions For Use

The complete electronic and transducer package is enclosed in a robust metallic case and encapsulated in polyurethane compound & emdash; it is completely impossible to tamper with the hardware without leaving clear evidence of such action.

The securing bolts pass right through the body of the instrument to guarantee a reliable mechanical installation.

The Shocklog has been designed to function reliably in difficult environments. The electronic components are assembled using surface mount technology and the latest automatic assembly equipment.

This construction technique, in combination with the absence of cables for power or sensors (unless additional external sensors are used) results in a very high immunity to electrical interference and very low levels of RF emission. The Shocklog may safely be used in close proximity to sensitive instruments or in difficult electrical environments.

The Shocklog is sealed to IP67 (including connectors) and is capable of operating at temperatures between -20° and +158°F (70°C). [-40 to +185°F (85°C) to special order.]

RD298HPT - Humidity, Pressure and Temperature

The RD298HPT is a combined humidity, pressure and temperature sensor for use with the RD298 ShockLog. It enables the ShockLog to monitor an extended range of environmental factors and is fully supported by the ShockLog software.

- Direct connection to RD298 ShockLog
- Built in calibration memory independent of ShockLog calibration
- Fully supported by ShockLog software
- Extended temperature range
- Robust stainless steel housing
- Obtains power from ShockLog
- No installation – plug and play operation
- Fast temperature response

RD298HPT SPECIFICATIONS

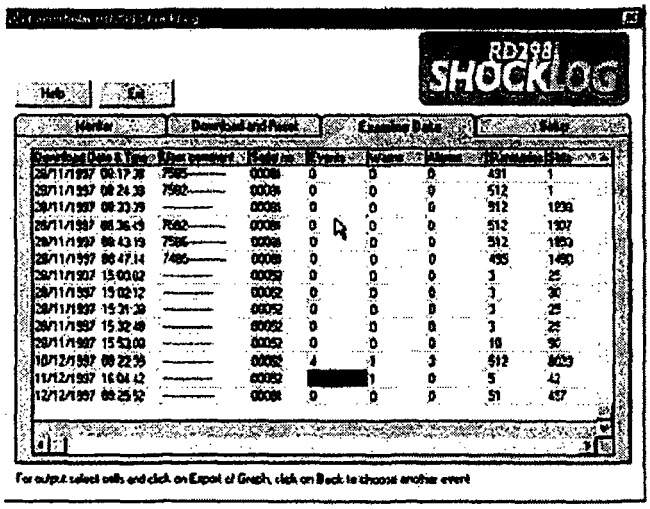
		Min	max	units
Complete Instrument				
Operating temperature range		40	+85	C
Drop test survival		1		m
Size	60 long x 32 diameter			mm
Case material	stainless steel + plastic			
Weight	0.09	kg		
Power	obtained from ShockLog			
EMC	EN50081-1, EN50082-1			
Humidity				
Measuring range		0	100	% RH
Accuracy (@25C, 25-75%RH)		-3	+3	% RH
Resolution		0.5		% RH
Pressure				
Measuring range		0	1.1	Bar
Accuracy (@0.2 – 1.1 Bar, 25C)		-10	+10	mBar
Accuracy(@0.0 – 0.2 Bar, 25C)		-30	+30	mBar
Resolution		2		mBar
Temperature				
Measuring range		-40	+85	C
Accuracy (-20 to +70C)		-2	+2	C
Resolution		0.5		C

This data sheet describes a product in development and is subject to revision without notice. Purchasers should confirm the specification before ordering. Aspects of the design of this product may be the subject of one or more British or International patents or patent applications.

Software

The Shocklog is supplied with software that runs on a desktop or portable PC using either the Windows 95/98 or Windows NT4 operating systems.

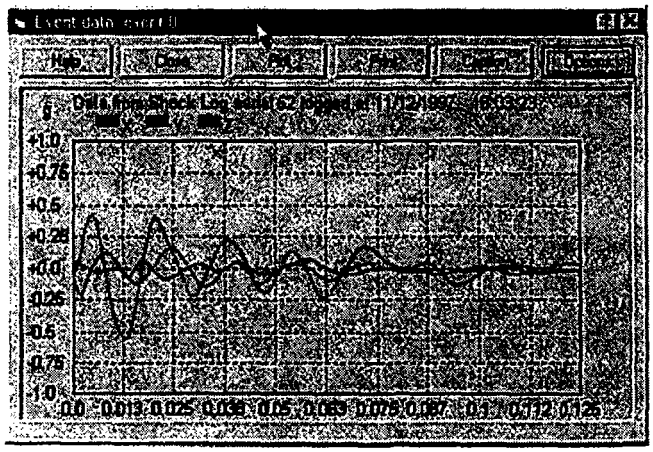
The software allows the operator to configure the Shocklog and to extract and examine data records from the instrument.



Reports
Reports may be viewed on screen and selected data exported to other applications. Five different reports are available: summary data, events summary, event details, time slot data and log data.

Summary report parameters: date, time, number of warnings, number of alarms, max x|y|z, min x|y|z, humidity, pressure, max pk x|y|z, min pk x|y|z, rms x|y|z, max/min temperature, range

- Events summary report parameters: date, time, duration, significance, range, temperature
- Event Details report parameters (text or graphical): sample time, sample number, max/min x|y|z
- Time slot report parameters (graphical): date, time, max pk x|y|z, min pk x|y|z, max ext1|ext2, min ext1|ext2, internal temperature, humidity, pressure, external temperature
- Log report parameters: date and time of: password changes, setup changes, battery changes, data clearing operations or resets.



Graphs
Any set of report parameters may be graphed against time and detailed graphs of individual events may be plotted on screen, printed or saved as files.

The Shocklog software can be downloaded free in the Technical Support area of the Shockwatch web site at www.shockwatch.com or can be ordered through an authorized Shockwatch dealer.

Hardware Specifications

Complete Instrument	min	max	units	Details
Operating temperature range (extended range available)	-20	+70	°C	
Drop test survival		1	m	
Size (over connectors)			mm	180 x 84x 42
Case material				aluminum
Weight		0.85	kg	
Dimensions				178mm x 84mm x 42mm
A-D converter resolution	10		bits	
Flash memory	32		k bytes	(for code)
	1920		k bytes	(for data)
Battery - (main full temperature range)	8000		mAh	1 x 3.6V lithium C size
Battery - (main reduced temperature range)	5500		mAh	1 x 1.5V alkaline C size
Indicators				Red and Green LED's
Interface				RS232 levels, Rx and Tx Baud rate: 19200
External power source option	4.75	18	V	
External power source average current (run - download)	20	250	mA	
External power source startup current		500	mA	
EMC				EN50081-1, EN50082-1, FCC CFR (July '96) Part 1 Limit B
Accelerometers				
Low frequency cut off (-3dB)	0.1	0.3	Hz	
Low frequency cut off (-3dB, 1g, 3g range)	1	2	Hz	
High frequency cut off (-3dB, all ranges)	150	250	Hz	
Resolution (% of full scale)	0.3			
Scale factor accuracy at 5g	-2	+2	%	
Change of scale factor over temperature	-4	+4	%	
Acceleration range	±1	±100	g	
Velocity range	±1	±100	cm/s	
Wake up threshold (% of range)	5	100	%	
Warning and alarm thresholds (% of range)	5	100	%	
Wake up time		1.5	mS	
Other ranges available as factory installed option up to 250g				
External Sensors				
Number of external inputs		2		
Independent thresholds for wake up etc		1		
Input voltage range	0	4.5	V	
Low frequency cut off	0	0	Hz	
High frequency cut off (-3dB)	40	80	Hz	
Resolution	5	4.5	mV	
Scale factor accuracy at 4V	-2	+2	%	
Change of scale factor over temperature	-2	+2	%	
Wake up threshold (ext 1)	0	5	V	
Warning and alarm thresholds (ext 1)	0	5	V	

Options

Please note that we are happy to discuss your specific needs and requirements. In certain circumstances, modified units may be manufactured to suit your OEM applications.

Included Accessories

- Serial communications lead to PC
- Molded plastic carrying case for ShockLog and accessories
- Software on CD ROM
- Operators Manual
- Spare alkaline battery

About SHOCKWATCH

Shockwatch develops, manufactures and markets a broad range of impact, tilt and environmental monitoring products built for damage prevention and the enhancement of safety standards. Shockwatch products, known for high quality, excellent reliability and leading technology, are distributed worldwide by a network of strategic partners and resellers. Founded in 1974, the company is headquartered in Dallas, Texas and is privately owned.

More information about the company and its products can be found at:

www.shockwatch.com

SHOCKWATCH®

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Dallas, Texas 75247 (800) 527-9497
info@shockwatch.com fax: (214) 638-4512

May 8, 2007

U.S. Department
of Transportation

400 Seventh Street, S.W.
Washington, D.C. 20590

**Pipeline and Hazardous
Materials Safety Administration**

DOT-SP 12056
(TENTH REVISION)

EXPIRATION DATE: March 31, 2011

(FOR RENEWAL, SEE 49 CFR § 107.109)

1. GRANTEE: Department of Defense
Fort Eustis, VA

2. PURPOSE AND LIMITATION:

a. This special permit authorizes the transportation in commerce of certain non-DOT specification propellant tanks designed to a military specification, overpacked in a UN 1A2 stainless steel drum, containing Division 6.1 liquid or Division 2.3 gas. This special permit provides no relief from the Hazardous Materials Regulations (HMR) other than as specifically stated herein.

b. The safety analyses performed in development of this special permit only considered the hazards and risks associated with transportation in commerce.

c. Party status will not be granted to this special permit.

3. REGULATORY SYSTEM AFFECTED: 49 CFR Parts 106, 107 and 171-180.

4. REGULATIONS FROM WHICH EXEMPTED: 49 CFR §§ 173.227 and 173.336 in that non-DOT specification packaging is not authorized, except as specified herein.

5. BASIS: This special permit is based on the application of the Department of Defense dated April 20, 2007 submitted in accordance with § 107.109.

6. HAZARDOUS MATERIALS (49 CFR § 172.101):

Hazardous Materials Description			
Proper Shipping Name	**Hazard Class/ Division**	**Identi-fication Number**	**Packing Group**
Dinitrogen tetroxide, liquefied	2.3	UN1067	N/A
Toxic by inhalation liquid, corrosive, n.o.s., *with an inhalation toxicity lower than or equal to 1000 ml/m3 and saturated vapor concentration greater than or equal to 10 LC50*	6.1	UN3390	I, Zone B

7. SAFETY CONTROL MEASURES:

a. PACKAGING - Prescribed packaging is a non-DOT specification aluminum propellant tank without a pressure relief device, overpacked in a UN 1A2 stainless steel drum. The tank is designed in conformance with Military Specification MIL-STD-1522 for pressure vessels with a minimum burst pressure of 150% of the maximum operating pressure.

(1) The propellant tank consists of an outer shell of composite construction, an inlet tube, a positive displacement expulsion liner made of aluminum, and a burst disc assembly and a titanium fill valve. The tank diameter is 7.3 inches maximum and the length is 17.5 inches. The maximum volume of a propellant tank is 8.0 liters.

(2) Each propellant tank is held in a shock-dampening frame which is packaged in a DOT Specification 1A2 steel drum. The drum has a mechanical recorder and visual indicators for shock protection.

(3) The packagings described under this special permit are authorized for reuse. Before reuse, each package must be inspected and found to be free of damage,

defects or leaks or evidence of a reduction in integrity, and in conformance with the original design specification and this special permit.

(4) DOD must report to the Office of Hazardous Materials Special Permits and Approvals (OHMSPA) any packaging that does not successfully meet the reuse criteria outlined in paragraph 7.a.(3) above. This report must be received within 60 days of the noted inspection failure and include a summary of the failure.

b. OPERATIONAL CONTROLS -

(1) The propellant tank may not be pressurized during transportation.

(2) The propellant tank may only be transported in temperature controlled motor vehicles and freight containers.

(3) Emergency response information provided with the shipment and available via an emergency response telephone number must indicate that the propellant tanks are not fitted with pressure relief devices and provide appropriate guidance for exposure to fire.

8. SPECIAL PROVISIONS:

a. The transportation of the material authorized under this special permit is limited to U.S. government purposes by the Department of Defense (DOD) and persons conducting operations under the direction of DOD officials and their designees.

b. DOD must submit an annual transportation summary of the shipping activity conducted under this special permit to OHMSPA. The annual summary must include all shipment origins and destinations and number of hazardous material shipments per material and per destination.

c. MARKING - The outside of each UN 1A2 steel drum must be plainly and durably marked "DOT-SP 12056" as specified in § 172.301(c).

d. This special permit serves as a Competent Authority Approval (CA-2003090016) issued by the Associate Administrator for Hazardous Materials Safety, Pipeline and

Hazardous Materials Safety Administration, of the United States Department of Transportation, in accordance with Section 4.1.3.7 and Chapter 7.9 of the International Maritime Dangerous Goods Code (IMDG).

e. Packagings permanently marked 'DOT-E 12056', prior to October 1, 2007 may continue to be used under this special permit for the remaining service life of the packaging or until the special permit is no longer valid. Packagings marked on or after October 1, 2007 must be marked 'DOT-SP 12056'.

f. Shipping papers displaying 'DOT-E 12056" may continue to be used until October 1, 2007, provided the special permit remains valid.

9. MODES OF TRANSPORTATION AUTHORIZED: Motor vehicle and cargo vessel.

10. MODAL REQUIREMENTS:

a. A current copy of this special permit must be carried aboard each cargo vessel or motor vehicle used to transport packages covered by this special permit.

b. For highway transportation, the two propellants authorized by this special permit may not be transported on the same motor vehicle simultaneously. The maximum quantity of any propellant on a motor vehicle may not exceed 24 liters (3 tanks).

c. The cargo vessels used to transport the materials authorized by this special permit must be operated by Matson Navigation Company, Lynden Transport, and TOTE Transport, Port of Oakland, California.

11. COMPLIANCE: Failure by a person to comply with any of the following may result in suspension or revocation of this special permit and penalties prescribed by the Federal hazardous materials transportation law, 49 U.S.C. 5101 et seq:

- All terms and conditions prescribed in this special permit and the Hazardous Materials Regulations, 49 CFR Parts 171-180.

- Persons operating under the terms of this special permit must comply with the security plan requirement in Subpart I of Part 172 of the HMR, when applicable.

- Registration required by § 107.601 et seq., when applicable.

Each "Hazmat employee", as defined in § 171.8, who performs a function subject to this special permit must receive training on the requirements and conditions of this special permit in addition to the training required by §§ 172.700 through 172.704.

No person may use or apply this special permit, including display of its number, when the special permit has expired or is otherwise no longer in effect.

Under Title VII of the Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users (SAFETEA-LU)- 'The Hazardous Materials Safety and Security Reauthorization Act of 2005' (Pub. L. 109-59), 119 Stat. 1144 (August 10, 2005), amended the Federal hazardous materials transportation law by changing the term 'exemption' to 'special permit' and authorizes a special permit to be granted up to two years for new special permits and up to four years for renewals.

12. REPORTING REQUIREMENTS: Shipments or operations conducted under this special permit are subject to the Hazardous Materials Incident Reporting requirements specified in 49 CFR §§ 171.15 - Immediate notice of certain hazardous materials incidents, and 171.16 - Detailed hazardous materials incident reports. In addition, the grantee(s) of this special permit must notify the Associate Administrator for Hazardous Materials Safety, in writing, of any incident involving a package, shipment or operation conducted under terms of this special permit.

Issued in Washington, D.C.:

Diane LaValle

for Bob Richard
Deputy Associate Administrator
for Hazardous Materials Safety

Address all inquiries to: Associate Administrator for Hazardous Materials Safety, Pipeline and Hazardous Materials Safety Administration, Department of Transportation, Washington, D.C. 20590. Attention: PHH-31.

Copies of this special permit may be obtained by accessing the Hazardous Materials Safety Homepage at http://hazmat.dot.gov/sp_app/special_permits/spec_perm_index.htm Photo reproductions and legible reductions of this special permit are permitted. Any alteration of this special permit is prohibited.

PO: PTO/RP/sln